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## Ceramic production in medieval Yemen: the Yad/.g/-at/. kiln site

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Excavated in 2001-2005, the site of Sharma in Yemen proved to be a transit entrepôt in the medieval trade networks of the Indian Ocean, founded on the coast of H/.ad/.ramawt by merchants of probably Persian Gulf origin at the crossroad of their maritime routes<sup>1</sup>. Located at the extremity of the prominent cape Sharma, 45 km east of the city of al-S/vih/.r and 100 km east of Mukalla/-. it is a fortified settlement counting at least 50 massive buildings of similar plans which may be interpreted as warehouses. The site delivered an assemblage of ceramic material which is mainly imported and of extremely varied origin, with 3.4% of Chinese porcelain and stoneware, one of the richest and most varied corpus of Sung ceramics ever discovered on an Islamic site, 6.6% of glazed pieces, mainly Iranian sgraffatos, and 90% of unglazed ceramics: around 12% of Indian wares, from the Sind region as well as from south India and Sri Lanka, c. 15% of African productions, and c.12% of imports from western Yemen, the areas of Zabid and Aden<sup>2</sup>. Except for a restricted late surface reoccupation south of the site, all identified pieces belong to a limited time-span, c. 980-1140, and this corpus therefore represents a unique closed assemblage of wares traded in the Indian Ocean around the 11<sup>th</sup> century<sup>3</sup>.

### Local ceramic ware at Sharma

Beside the imported wares, many pieces of an unknown ware were interpreted as local productions. They represent a third of the ceramic assemblage<sup>4</sup>, and they are characterised by their very coarse quality. The pieces are roughly hand-made. The fabric is often badly cooked, light and soft with a tendency to cleave, and the temper is mineral, with white lime grits of rather large size, or mixed with numerous straw airholes. The colour is buff inside, but with a wide greyish or black core in most cases, rather reddish near the margins, and covered with a thin cream slip.

Jars (fig. 1 / 1-10)

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<sup>1</sup> The site of Sharma was discovered in the course of a comprehensive survey of the H/.ad/.ramawt and Mahra coasts held in 1996-1999, and excavations were made at the site in 2001-2005. This project is supported by the French Ministry of Foreign Affairs and the National Centre for Scientific Research (Cnrs, Umr 8167, Paris), as by the General Organisation for Antiquities and Museums (San'a and Mukalla). Technical and scientific support was also provided by the French Centre for Archaeology and Social Sciences (Cefas, San'a), and the National Institute for Preventive Archaeological Researches (Inrap, Paris). All the plans and ceramic drawings published here are from V. Bernard who also directed the excavations at Yad/.g/-at/.. Details on Sharma as known from the 2001-2002 excavations are presented in Rougeulle 2003 and 2004.

<sup>2</sup> Rougeulle 2004: 214-230, *id.* 2005, Zhao 2004. The detailed study of the unglazed material is still in progress.

<sup>3</sup> Altogether 47,246 shards including 11,837 diagnostic pieces, unglazed, glazed and Chinese. The dating of Sharma is mainly provided by the study of the Chinese imports, see Zhao 2004.

<sup>4</sup> 1,623 diagnostic pieces excavated in 2001-2005. The complete count of the local ware, including undiagnostic, was made on the 2005 material only: 3,575 shards on 10,833 total unglazed shards (33%), including 464 diagnostic pieces. See also Rougeulle 2004: 226, fig. 14.

The best represented shapes are jars, which make up more than half of the diagnostic pieces (57%). Most of them are pear-shaped jars with a pointed base and a narrow cylindrical neck; the rim is generally expanded horizontally outside (80% of the necks, fig. 1 / 1-4), sometimes straight and pointed with a sharp triangular flange under the lip (18%, fig. 1 / 5-7). These small containers seem to have rather regular dimensions, about 40 cm in height and a maximum diameter of 26-28 cm, 10-14 cm at the neck, with rounded bases. They are decorated with a combed wavy-line on the shoulder and a combed band at the base of the neck, sometimes interrupted by vertical strokes (fig. 1 / 6), and some rare pieces have a wavy-line decoration on the lip as well. It must also be noted that about 6% of the decorated shoulder shards show traces of red festoons, painted near the incised decoration<sup>5</sup>.

Very rare (2% of the necks, fig. 1 / 8-10) another type has a concave neck and an expanded lip with combed indentations. Necks only were found and the general shape is unknown, but the diameter of the opening is much more varied than in the ovoid type, from 10 to 20 cm, and some of these jars could have been rather large. Some undiagnostic fragments belong to jars with thick walls and probable large dimensions, and some others show very marked fingerprints inside.

#### Basins (fig. 1 / 11-14)

Basins make up about 14% of the diagnostic pieces. They have a slightly conical shape, a bevelled or expanded rim, and a flat base. Most pieces are over 12 cm deep and around 24-28 cm in diameter, but some may reach 40 cm in diameter and more than 20 cm in depth. They are decorated with a combed wavy-line, often located under a very typical horizontal irregular incision in the middle of the outside wall (fig. 1 / 11, 13-14). More than half of the pieces are also decorated with a combed wavy line or punctuation on the upper part of the lip (fig. 1 / 12-13), sometimes covered with red painting (c. 7%). And about 5% show combed indentations on the external part of the rim, similar to the ones already noticed on some jars (fig. 1 / 14). Except for the decoration on lips, these pieces are clear imitations of the well-known wavy-line basins produced at Zabid during the same period. The kilns discovered by Ed Keall east of the city produced various shapes of ceramics with a well cooked, micaceous, brick-red or brownish fabric, including similar slightly conical deep basins with a club rim and an incised or combed wavy-line decoration under a groove, here generally located just under the lip rather than in the middle of the wall<sup>6</sup>. This peculiar shape was exported all around Yemen in the 10-12<sup>th</sup> centuries and has been found at many coastal sites as far as H/-alfu/-t and Kidmat Yaru/-b near al-G/-ayd/.ah in Mahra<sup>7</sup>. At Sharma Zabid basins represent about 5% of the diagnostic unglazed shards, some pieces clearly of the red East Zabid fabric, others with a more brownish colour and a clear slip which could have been produced in some other kilns in the area (fig. 2).

#### Bowls (fig. 3 / 1-11)

<sup>5</sup> This red painting is specially fragile and vanishes extremely easily; many such painted pieces may therefore have stayed unnoticed, specially during the first season.

<sup>6</sup> Ciuk & Keall 1996, pl. 95/30-33 and E. Keall pers. com. The structure unearthed was a “drum-shaped kiln, with a floor level flue on the windward side”, built over the “rake-out dump” of an earlier kiln, both dated to the 9-10<sup>th</sup> c. (Keall 1989: 65, fig. 5-6). Our deepest thanks are due to Ed Keall who is at the roots of the Islamic archaeology in Yemen and who gave us friendly access to all his documentation about his excavations at Zabid and surveys of the Tihama.

<sup>7</sup> For example at al-T/.ariyyah and al-Qurayyah in Abyan (Hardy-Guilbert & Rougeulle 1997: fig. 10 / 13-16), at al-S/vih/.r (Hardy-Guilbert & Ducatez 2004: fig. 18 / 3), at S/varwayn near Qis/vn (Rougeulle 2001: fig. 5 / 12), at H/-alfu/-t (*ibid*, fig. 5 / 16).

Bowls represent *c.* 22% of the diagnostic pieces. They have a more or less globular or conical shape, a straight or slightly everted lip, rounded or bevelled on the outer side, sometimes slightly notched. Many pieces show a thin irregular incision similar to the one already noticed on basins (fig. 3 / 1-2, 5). The bases are slightly convex or nearly flat but some samples of a rough ring base with a low and rounded ring were also found (fig. 3 / 4). Many pieces (64%, fig. 3 / 5-11) are decorated with red painting, mostly festoons extending down from a line, sometimes associated with overall red painting inside (fig. 4). Rare pieces show bands, or irregular dots or spots; on one occasion black painting was also used.

Various shapes (fig. 3 / 12-24)

Other shapes are very rare in local pottery. These are some globular pots, with or without a neck and with a combed wavy-line or red painted decoration (fig. 3 / 12-14), and some rather narrow biconical pots with a straight pointed lip (fig. 3 / 15-17), altogether around 2% of the diagnostic pieces. Rare small bowls or pots (7 ex., fig. 3 / 18-22) show a very peculiar excised zigzag decoration which is also found on typical rough square incense burners with four feet and a handle, often associated with red paintings (15 ex., fig. 3 / 23-24).

### Occurrences

The statistical study of the local ware at Sharma shows that these pieces constitute around one third of the total unglazed assemblage, although more detailed analyse indicates that they seem rather more numerous in the early phases of occupation at the site than at the end<sup>8</sup>. Most identified types are present all along the Sharma period, from the bedrock to the surface. This is the case for the jars, with an expanded or flanged rim, and of the basins, with or without any decoration on the lip. But the pieces with an indented lip, both jars and basins, seem more characteristic of the last phase and surface layers<sup>9</sup>. Bowls of various shapes, with or without painted decoration and with or without a ring base, are also found in all levels, but the pieces with excised zigzag motifs seem rather ancient<sup>10</sup>. Strangely enough, the incense burners with similar decorative technique seem on the contrary rather recent<sup>11</sup>, although the two corpus are probably too restricted to be significant. The number of biconical pots with a straight lip is also very limited but this shape seems rather typical of intermediate levels.

### The survey

While excavating at Sharma, limited surveys were conducted in the region, whose main object was to shed light on the interrelations between the medieval foreign entrepôt and its H./ad./rami/- hinterland (fig. 5).

Sharma is located near the small town of al-Di/-s al-S/varqiyah. In this area the coastal plain of H./ad./ramawt is interrupted by a large promontory, 20 km wide, the only significant feature of this kind between the Ra>/s al-Mukalla/- and the Ra>/s S/varwayn, near Qis/vn, along nearly 300 km of coastline. Here the foot of the mountain extends southwards into the sea, abutting on two small rocky plateaus with a steep ledge. To the east is the Ra>/s Ba/-</as/vwah, with rather vertical cliffs *c.* 50 m high overlooking the coastal plain eastward and the sea southward. To the west is the Ra>/s Sharma bordering a deep bay westward, and ending south

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<sup>8</sup> All excavated buildings at Sharma delivered two to five stratigraphical phases. But, as erosion is very extensive, the void areas between the structures have often been entirely washed down to the bedrock and it is therefore impossible to link accurately the chronology of these structures to a general phasing of the site.

<sup>9</sup> 4 pieces from low levels, 5 from intermediate levels and 19 from upper or surface layers.

<sup>10</sup> 5 pieces from phase I levels, 1 piece from a mixed level and 1 from a surface layer.

<sup>11</sup> No piece from a phase I level, 5 pieces from intermediate levels, and 10 pieces from upper or surface layers.

on a small triangular plain where the entrepôt was located. Between the two plateaus is the mouth of the Wa/-di/- Yat/-mu/-n, a large watercourse made of the junction of two wadis, the main Wa/-di/- H/.amem / D/.ubah and the secondary Wa/-di/- S/vabtu/-t, both joining about 4 km from the coast. West of the promontory is the mouth of the large gravelled Wa/-di/- Di/-s with al-Di/-s al-S/varqiyah 5 km upstream, and to the east is the Wa/-di/- S/vazwah with no present settlement. Yad/.g/-at/. and H/.alfu/-n, the main villages of the area are situated 12 km inland in the Wa/-di/- Jerbah, a short watercourse joining the Wa/-di/- H/.amem to the Wa/-di/- S/vabtu/-t whose valley forms a wide ovoid depression in the foot of the mountain, about 2.5 km long north-south and 1.5 km large east-west, more or less separated in two parts by a north-south line of hills.

The main areas surveyed till now are the coast of the promontory, the bed of Wa/-di/- Di/-s up to al-Di/-s al-S/varqiyah, and the Wa/-di/- H/.amem / D/.ubah / Jerbah area. About 40 sites were registered, half of them near the coast east and west of Sharma, the others in the wadis<sup>12</sup>. Twelve may be dated to the Prehistoric period, twelve others are of the late Islamic and recent periods, four are probably South-Arabian, and four others are Early or Middle Islamic. Among them, Wa/-di/- D/.ubah 4 delivered several Chinese porcelain and stoneware pieces including a typical Longquan celadon bowl with lotus decoration of the 13<sup>th</sup> century, but no Sharma horizon piece. The site is composed of three large structures in wadi pebbles (14°56'54"N, 50°04'34,9"E), located on the eastern bank of the Wa/-di/- H/.amem / D/.ubah, on a promontory at its intersection with a small secondary watercourse<sup>13</sup>. The presence here of the Chinese ceramics and specially of the Longquan bowl is very interesting, as imports of this period are extremely rare on the H/.ad/.ramawt coast where the international trade seems to have been concentrated at al- S/vih/.r after the fall of Sharma (Rougeulle 2000: 69). It is therefore possible that these pieces transited through al- S/vih/.r. Only three registered sites are contemporary with Sharma. One of them, Wa/-di/- H/.amem 1 (14°57'27,4"N, 50°04'33,9"E), not far upstream from Wa/-di/- D/.ubah 4, is a rather large settlement site, with many walls which are hardly visible on the surface and traces of an irrigation system; it yielded some material including pieces contemporary with the Sharma horizon, several glass fragments, a shard from a Chinese stoneware jar, and several pieces in local ware, wavy-line basins and a jar with a flange. Much richer and interesting in connexion with Sharma are the sites of Yad/.g/-at/. and Jerbah, both located in the wide valley of Wa/-di/- Jerbah.

### The W/-adi/- Jerbah

To-day the landscape in the Wa/-di/- Jerbah valley is rather arid. Under a hard concretion surface level, the natural terraces are made of soft white limestone with layers of red clay, with the narrow bed of the wadi cut several meters deep in the substrate at the eastern foot of the central hills. Several dry stones structures at various stages of decay are located on the surrounding heights and an abandoned village with a small fort made of mud bricks on a stone foundation is situated on an elevation on the east bank. The vegetation is scarce with some groups of dead palm-trees here and there. According to local information the desertification of the area is rather recent. In the recent past the valley was widely cultivated and traces of the irrigation system are still visible everywhere: deep large irregular wells with access ramp, lines of qanat with circular or rectangular pits, small surface canals, which were built and plastered or simply cut in the substrate, rectangular shallow cemented basins of various size,

<sup>12</sup> Beside the comprehensive survey of the coast held by the author in 1996-1999, during which the site of Sharma and other coastal sites of the vicinity were discovered, research in the area was mainly conducted in 2004 by J. Schiettecatte (Cefas). The study of the prehistoric material was made by R. Crassard (Cefas).

<sup>13</sup> All data on Wa/-di/- D/.ubah 4 and Wa/-di/- H/.amem 1 were provided by J. Schiettecatte.

and a wide and deep cistern in a cave under a hill with a complex system of deeply cut channels. The dating of these structures is difficult to ascertain but the latest well was dug about 20 years ago, after which the water table lowered dramatically and agriculture decreased rapidly. Small palm groves are only preserved now near the villages of Yad/.g/-at/. and H/.alfu/-n.

#### The site of Yad/.g/-at/.

The archaeological site of Yad/.g/-at/. (14°55'40.7"N / 50°04'07.5"E) is located about 1 km east-southeast of Yad/.g/-at/. village, on the eastern border of the valley<sup>14</sup>. A dozen buildings are visible on the surface, stretching over about 200 m at the foot of the plateau, probably all that is left of a much larger settlement destroyed by agricultural works and erosion (fig. 6). The preserved walls, one or two courses of dry stones, are situated on slightly high ground between numerous shallow erosion wadis. Most structures are badly damaged but the best preserved have a plan of two or three contiguous rooms, covering up to 55 m<sup>2</sup>, similar to the small buildings found at Sharma. Located at the southern extremity of the preserved area, a square edifice 11.75 m on each side (138 m<sup>2</sup>), is probably a mosque: a rectangular buttress in the middle of the western wall could be the trace of a mihrab.

But the most interesting features preserved at Yad/.g/-at/. are traces of ceramic production. No built kiln was found but five heaps of kiln refuse were identified in the northern part of the site, among the buildings there. The best preserved is a roughly circular heap, c. 10 m in diameter and about 80 cm high above ground surface (fig. 7). When the site was first discovered in 2002, a hole on one side showed that it was entirely made of piled-up shards of the coarse local ware identified at Sharma. At the western foot of the heap the surface is completely burnt, a hard concretion of burnt earth and ashes, with large quantities of charcoal, clay nodules and small shards. No doubt therefore that the ceramics produced here were fired in the open air, lying on the ground and covered with fuel, branches and palm tree leaves.

To the south-east of the site, right at the foot of the plateau, a narrow roughly square shaft was dug at least 3 m deep. Its original depth could not be checked and its function is not certain, but it crosses a vein of pure red clay and could therefore have been dug for the extraction of the colouring used in the painted decoration on the vessels. In any case, this shaft seems too small to have been utilized for the mining of the ceramic clay itself and the origin of this material is still unknown. It could have been taken directly from the surface, maybe south of the site where a wide area is covered with a layer of pure white powdery earth mixed with ashes.

#### The excavations

During the last season at Sharma, limited excavations were made at Yad/.g/-at/. under the direction of V. Bernard<sup>15</sup>. A trench 5 m long and 1 m wide was opened across the main refuse heap and the adjacent firing area (S1), small soundings 1 m x 1 m were dug in three other heaps (S2-S4) to check the shapes produced in each kiln, and part of a building was excavated (S5).

Excavations in the heaps show that they are made of successive layers of kiln refuse. All were largely washed down by erosion but, in trench S1 for example, 14 layers are preserved (fig. 8): of these, there are ten layers, about ten centimetres thick each, of agglutinated shards,

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<sup>14</sup> The site of Yad/.g/-at/. was discovered in 2002 by A. Joyard and E. Charpy (Inrap), two members of the Sharma team.

<sup>15</sup> Data published here are from V. Bernard, who must be deeply thanked for his work at Yad/.g/-at/., specially as the Wa/-di/- Jerbah valley is one of the hottest places in the region.

sometimes plain sometimes mixed with some powdery earth or ashes, and four intermediate layers of grey cemented earth in blocks with inclusions of black charcoal and red decayed shards, probably the result of the cleaning of the firing area. No clear layers are visible in what is left of the firing area itself which is mainly made of ashes, agglomerated in blocks or plates, with large quantities of charcoal, clay pellets and burnt stones, probably used to prop the vessels during the firing process and now mostly decayed into white powder.

#### The Yad/.g/-at/. ware

There is no doubt that the Yad/.g/-at/. kilns produced the local ware identified at Sharma. The fabric, shapes and decoration are identical or similar, but the statistical study of the Yad/.g/-at/. corpus produces interesting information when compared with the Sharma assemblage. Thousands of fragments were found, including 495 diagnostic pieces from the heaps and 101 from the building (fig. 9).

To start with, jars at Yad/.g/-at/. represent more than 90% of the diagnostic pieces from the heaps, compared with the 57% at Sharma, and nearly all the necks are of the expanded rim type (323 pieces, fig. 9 / 1-3), with only 1 piece of the flanged type and none with combed indentations. As at Sharma, most of them were decorated with wavy-lines on the shoulder (26% vs 31%), sometimes also with added painted festoons (2% vs 6%), but no piece with an indented lip was found in the heaps. It is also very interesting to note that the main heap n°1 produced a number of body shards covered with very deeply marked finger prints inside (more than 18% of the jars fragments, fig. 9 / 5), a feature which is totally absent from the other heaps and very rare at Sharma. It is possible that this was sort of a trade-mark of one particular potter and that jars from Sharma come mainly from other kilns.

On the contrary, bowls are ten times less numerous at Yad/.g/-at/. than at Sharma (2.4%, fig. 9 / 9-12), but the proportion of painted pieces is similar, more than half of them (67% vs 65%) decorated with identical red festoons or overall painting inside. Basins are also much less numerous at Yad/.g/-at/., 2.2% (fig. 9 / 12-13). Contrary to Sharma, all are decorated with incisions on the lip, sometimes also with red painting, but no piece was found with combed indentations. Although the corpus is probably too limited to be significant, it may be noted that these basins are much more numerous in heap n°3 where they represent nearly 8% of the diagnostic pieces. One typical shape produced at Yad/.g/-at/. are biconical pots with a straight pointed lip and suspending holes, some with painted decoration, which represent 3% of the corpus (fig. 9 / 17-19), much more than at Sharma (c. 0.6%); most of them were also found in heap n°3 (9.2%). Finally, no typical cut decoration was found in the areas excavated, but two handles from incense burners were discovered in heaps n°1 and 4 (fig. 9 / 20).

The assemblage found in the building is rather different. Jars are even more numerous than in the heaps, 98% of the assemblage with only one shard from a bowl and one from a basin. The quantity of these containers could indicate that the excavated area was not for domestic purpose but possibly for storage, either for storing the kiln production or maybe some agricultural product. The flanged type is also much better represented, more than 12% of the necks (fig. 9 / 6-7), a fact which could indicate that this shape was produced in a nearby kiln which is now destroyed. All the vertical combed strokes decorations found at the site (3 ex., fig. 9 / 6-8) come also from this building, always on flanged type jars when the rim is preserved, and it is therefore probable that these two features define a special production type, a conclusion which is not in contradiction with what is known from the few pieces of this kind found at Sharma (fig. 1 / 6).

### Other archaeological material

Beside Yad/.g/-at/. ware, archaeological material found at Yad/.g/-at/. is scarce but rather rich and varied given the rustic nature of the site. Diagnostic pieces are all contemporary with the Sharma horizon, ca 980-1140, and include several types of imports well known at the port site, such as fragments of alkaline blue glazed Abbasid jars (5 ex.), Iranian sgraffiatos with hatched decoration (4 ex., fig. 10 / 6), Chinese stoneware jars (3 ex.) and *qingbai* porcelain (5 ex.), and numerous glass fragments including 3 bracelets.

Similar Sharma horizon material, even more rich and varied, was also discovered at Jerbah, a site located west of the valley, 2 km north-west of Yad/.g/-at/. site (14°56'0.5"N, 50°03'27"E). Beside Yad/.g/-at/. ware, 15 stoneware jars and 14 *qingbai* porcelain (fig. 10 / 1), 3 blue glazed and 1 white glaze Abbasid pieces (fig. 10 / 2), 8 sgraffiatos including incised, hatched and champlevé types (fig. 10 / 3-6), 3 fragments of large jars with incised and ribbed decoration under a black slip of probable Gulf or Omani origin, one paddle-impressed fragment of a pot from south India or Sri Lanka (fig. 10 / 7), one cooking-pot and one bowl from Eastern Africa (fig. 10 / 8-9), were collected on the surface. Ten shards of the typical kegs which characterise the end of Sharma occupation were also found. These extremely unusual pieces, probably originating from the Dah/-lah oasis in the Lybian desert of Egypt where they are known as water containers, are found in quantity at Sharma but exclusively on the surface or in levels just sealed by the final collapse of the buildings. They probably indicate that the entrepôt was abandoned or destroyed following the arrival of people from the Red Sea area (Rougeulle 2004: 227-228, fig. 15 / 6-12).

Although some ruined structures are located on small elevations, no trace of ceramic production was found at Jerbah. But the surface of the area shows extensive levelling and irrigation works, hence it is possible that kilns were also located in this sector. They maybe produced the jars and basins with comb indented lips known at Sharma as the only shard of this kind found in the valley was discovered there (fig. 9 / 15).

### Conclusion

It is therefore likely that several ceramic production centres were working in the Wa/-di/- Jerbah valley at the time when the Sharma entrepôt was in activity. Excavations in the heaps show that each kiln produced more than one shape, but it is nevertheless clear that there was some sort of specialization in this production. For example the pieces with finger prints seem typical of Yad/.g/-at/. heap n°1, the jars with a flanged neck could have been produced in a now-destroyed nearby kiln, the indented lip jars and basins were possibly made at Jerbah, and basins without any lip decoration somewhere else. The inhabitants of Sharma shopped at different kilns in the valley and it is interesting to note that a peculiar shape like the biconical pot with suspending holes was not very popular in the harbour.

From the little archaeological evidence now preserved, it is difficult to draw general conclusions about the importance of the Wa/-di/- Jerbah ceramic centre, the total number of kilns, their relative period of activity, the way they fonctionned, the volume of production and the importance of this production in the economic life of the region, including its impact on the environment as it is a considerable wood-consuming activity. It is nevertheless clear that, due probably to its commercial links with Sharma related not only to ceramics but also most certainly to many other products such as food supplies, wood etc., the region reached a rather high standard of living attested by the presence of costly imported items. An interesting point in this corpus of imported goods is the presence of rather numerous Abbasid pieces of the 9-



10<sup>th</sup> c., 9 shards out of a total of 21 glazed pieces whereas these ceramics represent less than 2% of the glazed assemblage at Sharma, mostly found in the earliest layers on the bedrock. This could indicate that the kilns were already in activity, and connected to the international trade networks, before the entrepôt was founded, maybe through the harbour of al-S/vih/.r, 50 km westwards, where Yad/.g/-at/. ware was also discovered in c. 11<sup>th</sup> c. levels (Hardy-Guilbert & Ducatez 2004: 132, fig. 18 / 1, 2, 4, 5, 8). Beside Sharma, al-S/vih/.r and Wa/-di/- D/.ubah 4 no other find spot of Yad/.g/-at/. ware was registered during the surveys, neither in the hinterland of Sharma nor on the coast in general. As is often the case with local ceramic productions, its sphere of diffusion was rather restricted. It must nevertheless be noted that pieces with cut zigzag decoration and red painting very similar to the one known at Sharma were recorded at medieval sites in the Wa/-di/- Masi/-lah as well as on the coast of Dhofar<sup>16</sup>. (16)

As for the end of the production, the presence at Jerbah of several fragments of seemingly Dah/-lah kegs seems to indicate that the people who brought these kegs with them to Sharma, and probably destroyed the entrepôt, did not stopped there but marched inland as far as the Wa/-di/- Jerbah, probably the main centre of the area at that time. Except for a single piece of Mustard ware (fig. 10 / 10), dated c. 1300, no diagnostic medieval material later than the Sharma horizon was found at Jerbah as at Yad/.g/-at/. or elsewhere in the valley. It is therefore probable that the ceramic production ceased at the same time that Sharma was abandoned, whether the kilns were destroyed by the people from the Red Sea, or whether the closure of the economical outlet of Sharma put an end to this activity in the valley.

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<sup>16</sup> By an American team directed by J. Zarins (see <http://arabian-archaeology.com/arch2islamic.htm>, n°95-108)

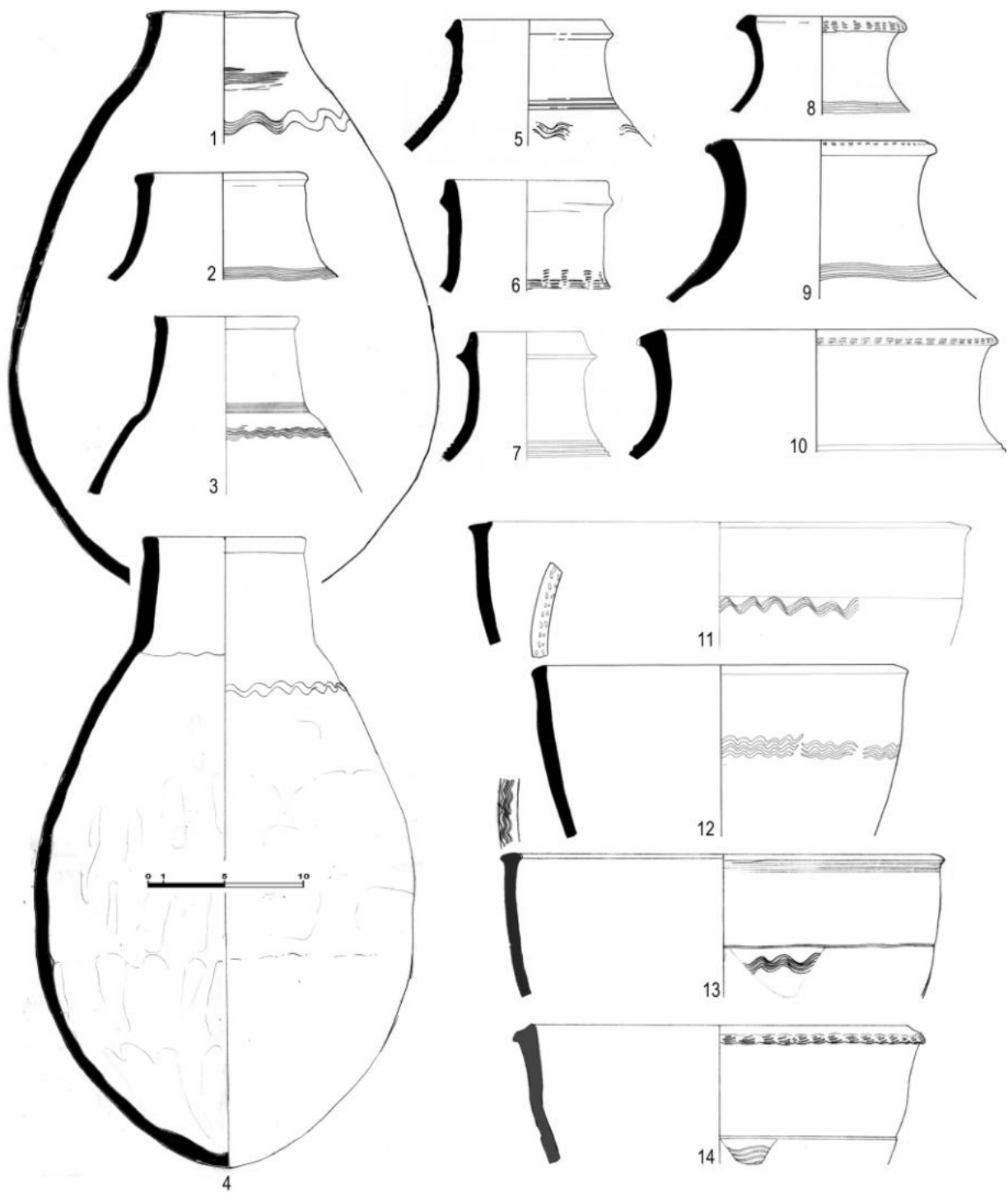


Fig. 1- Sharma, local ceramic ware: jars (1-10) and basins (11-14).

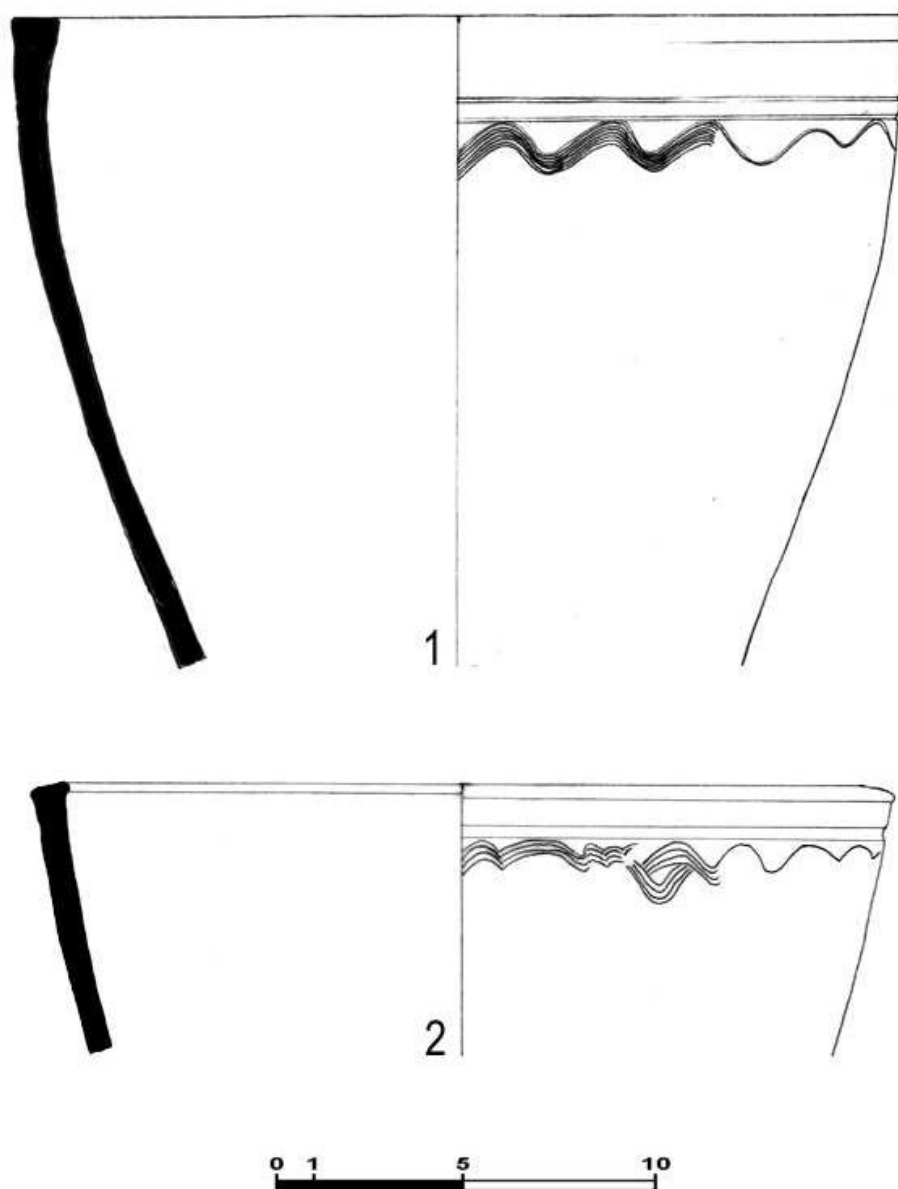


Fig. 2- Sharma, wavy-line basins from Zabid.

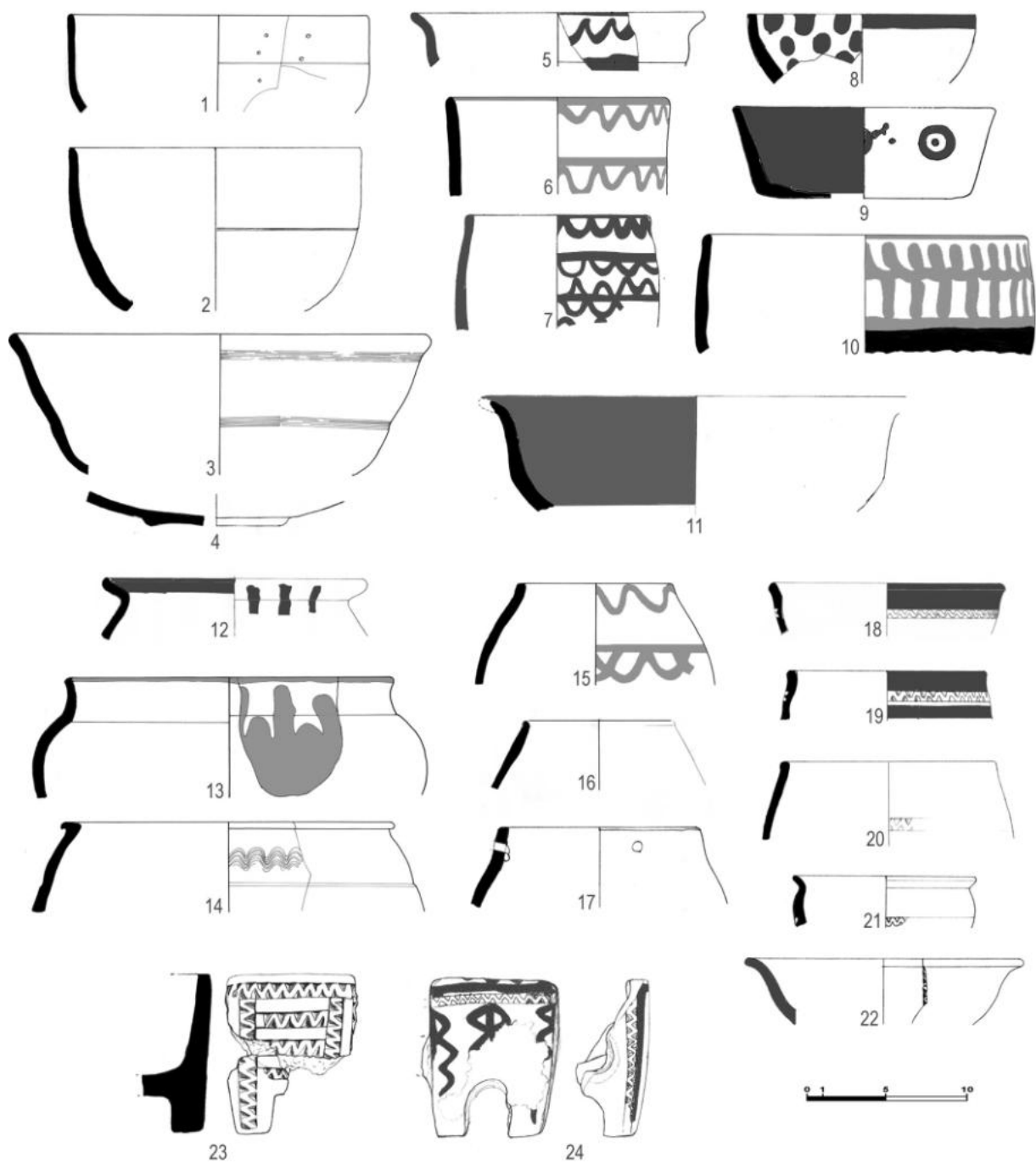


Fig. 3- Sharma, local ceramic ware: bowls (1-11), pots (12-17), various vessels (18-22) and incense burners (23-24) with cut zigzag decoration.



Fig. 4- Sharma, a local bowl with overall red painting inside and festoons outside.



Fig. 5- Map of the hinterland of Sharma, location of Yad/.g/-at/.

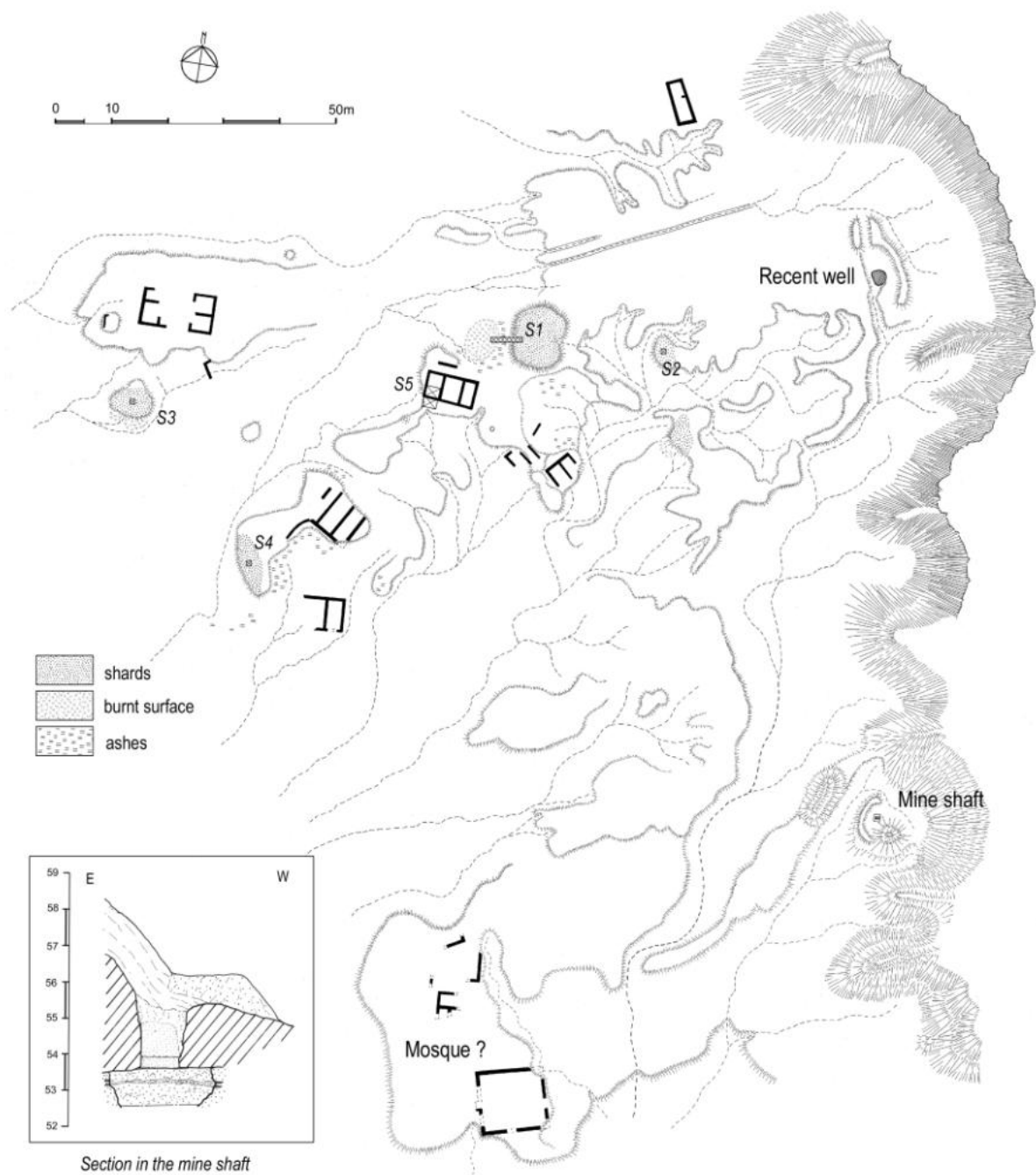


Fig. 6- Yad/.g/-at/., plan of the site.



Fig. 7- Yad/.g/-at/., the refuse heap n°1.

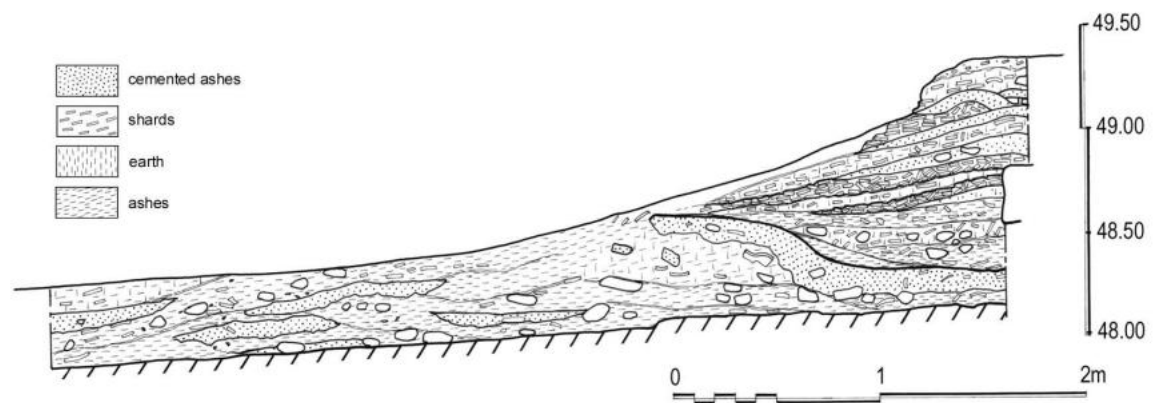


Fig. 8- Yad/.g/-at/., section of the trench in the firing area and refuse heap n°1.



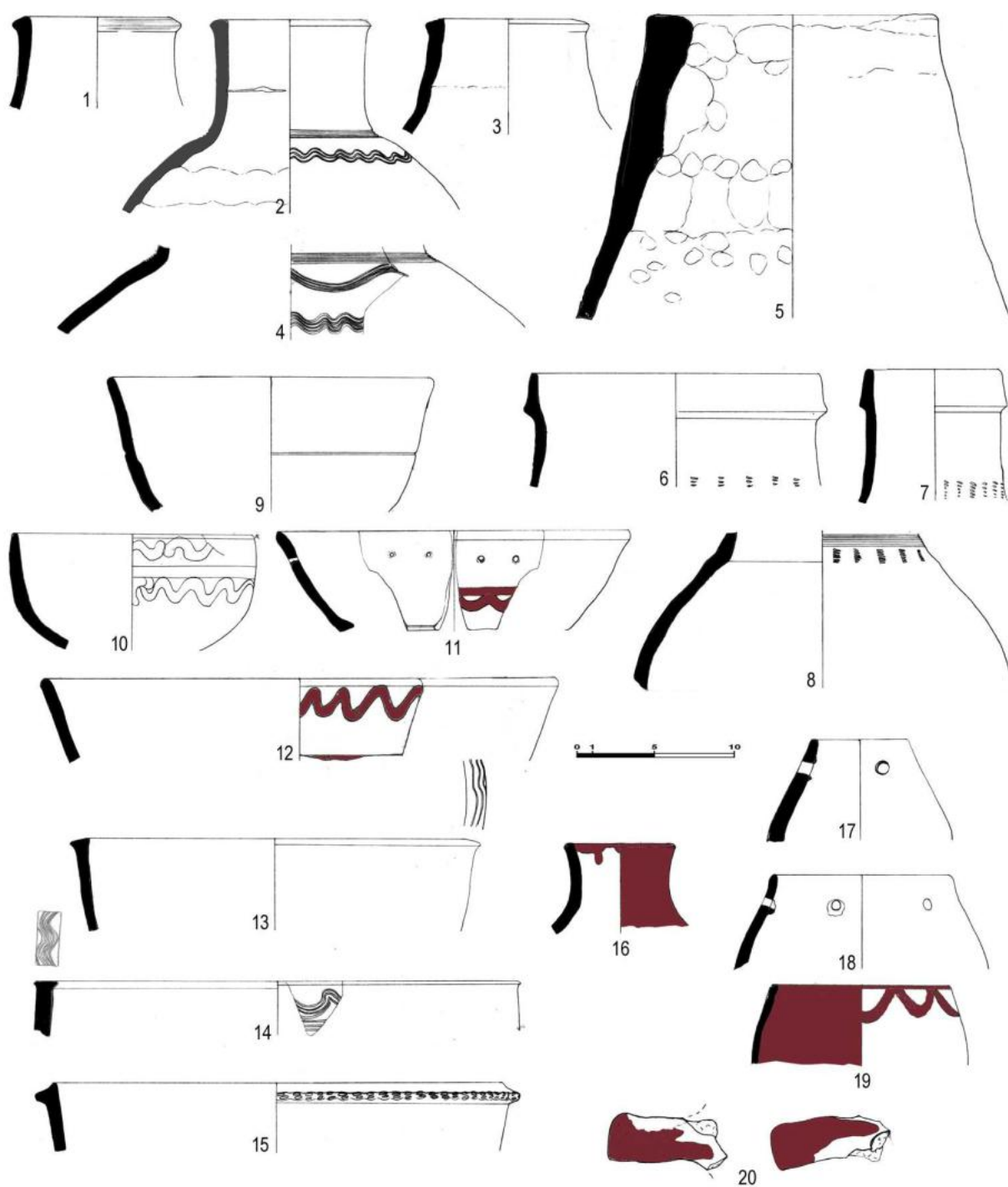
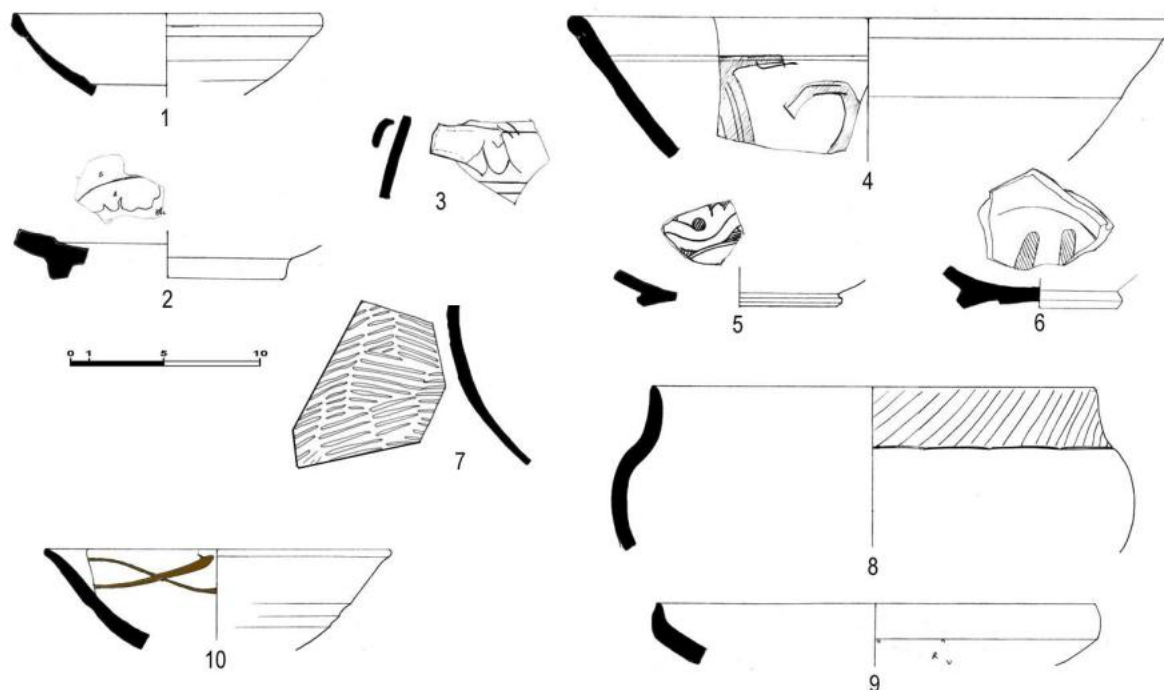


Fig. 9- Yad/.g/-at/. (1-9, 11-12, 14, 16-20) and Jerbah (10, 13, 15), local ceramics: jars (1-8), bowls (9-12), basins (13-15), pots (16-19) and the handle of an incense burner (20).





10- Yad/.g/-at/. (6) and Jerbah (1-5, 7-10), imported ceramics:

1. A bowl with a rolled lip; greyish porcelain; grey-greenish glaze.
2. The base of a bowl; medium yellow fabric with mineral temper; inside and outside thick whitish glaze with clear blue patches inside, degraded.
3. A shoulder of a small jar or jug; medium red fabric; white slip; incised decoration under a glaze mottled in honey and purple, very degraded.
4. A bowl with a straight lip; medium brick-red fabric; white slip; very rough *champlevé* decoration under a colourless glaze, slightly greenish on the lip.
5. The base of a bowl; rather fine red fabric; white slip; floriated hatched decoration under a colourless glaze with patches of honey and purple, very degraded.
6. The base of a bowl; medium dark red fabric; white slip; hatched decoration under a mottled glaze, very degraded.
7. The body of a cooking pot with thin walls; coarse brown ware with a black core; outside red slip; paddle impressed decoration; burnt surface.
8. A cooking pot with a short wide neck; coarse red-brown sandy fabric; incised decoration on the neck; black burnt surface outside.
9. A shallow bowl with a straight pointed lip; coarse brown fabric with a black core; outside red slip, degraded.
10. A bowl with an everted lip; medium red micaceous fabric; white slip; dark brown painted lines on a yellow-greenish glaze, degraded.